

### **REMARKS**

By entry of this Amendment after 37 C.F.R. 1.114, claims 1, 11, 20, 23 and 25 have been amended in order to advance prosecution in the above-identified application.

No new matter has been introduced by this preliminary amendment. Entry of the Preliminary Amendment reconsideration and allowance of the claims is respectfully requested.

#### **I. Status of Claims:**

Claims 1-25 are pending in the application. Claims 1-25 stand rejected in the subject Office Action by Paragraphs, as follows:

##### **Paragraph 1:**

Claims 1, 2, 6, 10-12, 15 and 19-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Adachi (US 6,256,334 B1), hereinafter “Adachi” in view of Hlasny (US 6,603,799 B1, hereinafter “Hlasny”).

##### **Paragraph 2:**

Claim 25 is rejected under 35 USC 103 (a) as being unpatentable over Adachi and Fleek, *et al.* (US 5,533,025; hereinafter “Fleek”).

##### **Paragraph 3:**

Claims 4, 5, and 14 are rejected under 35 USC 103 (a) as unpatentable over Adachi and Hlasny and further in view of USP 5,533,025 to A. Fleek (hereinafter Fleek), of record.

##### **Paragraph 4:**

Claims 3 and 13 are rejected under 35 USC 103 (a) as unpatentable Adachi and Hlasny and further in view of USP 6,333, 937 to D. Ryan (hereinafter Ryan), of record.

##### **Paragraph 5:**

Claims 7-9 and 16-18 are rejected under 35 USC 103 (a) as unpatentable over Adachi and Hlasny and in further view of US Patent Application Publication 2005/0058181 to R. Lyle, *et al.* (hereinafter Lyle), of record.

Applicants' attorney thanks Supervisory Patent Examiner Matthew Anderson and Examiner Wen W. Huang for the courtesy of a personal interview conducted May 17, 2007. Claims 1 and 25 were discussed with respect to the cited art. The Examiners agreed that the cited art would be overcome in a RCE amending the claims to describe a wireless communication system operating in the Ultra Wide Band frequency range including a plurality of unique Time Frequency Codes determined for each of a plurality of networks. The interview was summarized in an Interview Summary.

## **II. Response to 35 U.S.C. § 103 Rejection:**

Applicants respond to the indicated Paragraphs of the subject Office Action and limits consideration to the independent claim rejections only, and reserving an option to respond to the rejections of the dependent claims by Supplemental Amendment after an Advisory Office Action is issued by the Examiner.

### **Paragraph 1:**

1. Claims 1 and Claim 11 (These claims track one another and will be considered together as Claim 1), and include elements as follows:

(a) a) identifying a frequency hopping pattern via measuring energy level in ~~one or more~~ a plurality of frequency bands operating in the Ultra Wide Band (UWB) of 3.1Ghz to 10.6 Ghz associated with at least one remote short-range wireless communications network;

The Examiner contends that claim 1 feature (a) is described in Hlasny at col. 4, line 58- col. 5, line 1. The cited Hlasny text describes a method of detecting a frequency

hopping pattern of a spread spectrum transmission divided into a succession of superframes. Each superframe comprises a single band of 75 frequencies separated by 1 MHz. An interfering hopping pattern with the single band of frequencies is detected by sequentially transmitting and monitoring at least three sequential probe signals. A timer is initiated for each probe signal when the received signal strength reaches a threshold level. The time interval between starting the timers is correlated with to a frequency hopping pattern used by an interferer.

In contrast, Applicants' specification at Paragraphs 0057-0058 discloses a device identifies a frequency hopping by measuring energy in a plurality of frequency bands operating in the Ultra Wide Band (UWB) of 3.1Ghz to 10.6 Ghz for the transmission of OFDM symbols at one of three frequency bands according to Multiband OFDM (MBO) protocol, described in Applicants' specification at Paragraphs 0004 – 0005. Hlasny operates in the 2.4 Ghz frequency band whereas applicants operate in the UWB frequency band. Hlasny measures energy level in a single frequency band, and fails to disclose measuring energy levels in a plurality of frequency bands to identify a frequency hopping pattern. Hlasny fails to disclose the subject matter of claim 1 feature (a).

(b) “based on the identified frequency hopping pattern in the at least one remote short-range wireless communications network, selecting a frequency hopping pattern for communications in a local short-range wireless communications network;”

The Examiner contends that claim 1 feature (b) is described in Adachi at col. 17, lines 49-53. The cited Adachi text disclose s a hopping pattern for a base station is set to be different than an obtained frequency pattern for a single band of frequencies, as disclosed by Adachi at col. 13, lines 29-40 and at col. 2, lines 39-50.

In contrast, Applicants' specification at Paragraphs 0060-0061 discloses transmitting symbols in various frequency bands in the Ultra Wide Band of 3.1 to 10.6 Ghz based upon the measured energy level low energy condition for the one or more frequency bands.

Adachi selects a frequency hopping pattern for a single band of frequencies. Adachi fails to disclose selecting a hopping pattern for one or more frequency bands. Adachi fails to disclose the subject matter of claim 1 feature (b).

(c) "based on the identified frequency hopping pattern, selecting a timing for the selected frequency hopping pattern based on the measured energy level;"

The Examiner contends claim 1 feature (c) is described in Adachi at col. 17, lines 57-59. The cited text discloses the FH selection/setting section of Adachi sets a timer to a value different from the timer value obtained from a probe response.

In contrast, Applicants' specification at Paragraph 0002 discloses timing for the identified frequency band hopping is based upon the low energy condition in a frequency band and designating a starting time during the low energy condition.

Adachi discloses a timer setting based upon a probe response signal without regard to the low energy value of the probe signal value. Adachi fails to disclose setting the timer value based upon the low energy condition of the probe signal, as described in Applicants' specification in Paragraph 0002. Adachi fails to disclose the subject matter of claim 1 feature (c).

(d) "communicating the selected frequency hopping pattern and timing to the local short-range wireless communication network."

The Examiner contends claim 1 feature (d) is disclosed in Adachi at col. 17, lines 59-60 and col. 17, line 66 – col. 18, line 7. The cited text discloses the FH selection/setting section of Adachi imparts the timer value in the synchronization frame received by each of the terminal stations in the network.

In contrast, Applicants' specification Paragraphs 0062 and 0067 discloses transmitting the hopping pattern and a determined time to the local network for the one or more frequency bands.

Adachi discloses transmitting a timing value to the local stations which adjust their hopping pattern according to the timing value in a single frequency band. Adachi fails to disclose transmitting a hopping pattern and a timing value to the one or more frequency bands.

Summarizing, Adachi and Hlasny, alone or in combination, describe adjusting the timing of a hopping pattern of a single frequency band operating in the 2.4 Ghz band including a plurality of channels to prevent interference with a neighboring network. In contrast, Applicants disclose adjusting the hopping pattern and timing of one or more frequency bands in the UWB 3.1 to 10.6 Ghz based upon a low energy condition in a frequency band and designating a starting time for a hopping pattern during the low energy condition.

The rejection of claim 1 based upon Adachi and Hlasny is without support for the reasons indicated above in the consideration of claim 1, features (a) – (d). Withdrawal of the rejection of claims 1 and 11 under 35 USC 103 (a) and allowance thereof are requested.

2. Claim 20 and Claim 23 (Claims 20 and 23 are similar), and include elements as follows:

(a) “carrier sensing module configured to monitor transmissions in one or more frequency bands;”

The Examiner contends Adachi at col. 13, lines 50-60 describes carrier sensing in one or more frequency bands. Applicants disagree. The cited text describes a probe response reception section and a synchronization frame reception section which actively searches out nearby radio system, and do not rely on carrier sensing.

In contrast, Applicants' specification at Paragraphs 0052 and 0079 describes a carrier listening system which does not actively search out nearby radio systems and monitors at least three frequency bands for Multiband OFDM communications.

Adachi does not describe the subject matter of feature (a).

(b) " timing controller generating scan messages inquiring about neighborhood networks and frequency hopping patterns they employ and select from scan responses a frequency hopping pattern for a local short-range wireless network based on a frequency hopping pattern of at least one remote short-range wireless communications network detected by the carrier sensing module; the timing controller further configured to transmit signals to control one or more transmission times according to the selected frequency hopping pattern based on energy levels detected in a frequency band by the carrier sensing module;"

The Examiner contends that Adachi at col. 17, lines 53-56 describes the subject matter of feature (b). The cited text describes a FH control section sending out probe signals to nearby stations' for their frequency hopping pattern. When a probe response signal is received including the nearby station's hopping pattern, the FH section selects the received frequency hopping pattern for itself, and adjusts the timing of its' hopping pattern to a value different from the received pattern via the timing components 50c and 50 d.

In contrast, Applicants' specification at Paragraphs 0077-0083 describes the operation of the timing controller for detecting nearby networks based on scan messages and energy level detected. The controller selects the hopping pattern for use by the local device and controls message transmissions times based on energy levels detected in a frequency band.

Adachi discloses probe signals for detecting nearby networks whereas applicants disclose scan messages and carrier sensing by energy level to detect nearby networks. Adachi discloses FH section adjusting the timing of a received hopping pattern for transmission to other networks whereas applicants disclose the timing controller selects a hopping pattern and controls

transmission times of the hopping pattern to other networks according to energy level detection. Adachi fails to disclose the subject matter of feature (b).

(c) “transceiver, responsive to the transmit signals, configured to transmit data at the one or more data transmission times according to the selected frequency hopping pattern.”

The Examiner contends Adachi components synchronous frame transmission 51, data transmission section 52, data reception section 53 and timer 50 c in view of Hlasny at col. 4, line 58 – col. 5, line disclose the subject matter of feature (c ). The cited text discloses a synchronization frame is generated by the synchronous framing the same frequency band via the data transmission section 52 at a timing interval provided by the timer 50c.

In contrast, Applicants’ specification at Paragraphs 0011-0012 and 0051-0053 discloses the transceiver 1208 transmits data at one or more data transmission times for the three frequency bands sequentially receiving OFDM symbols.

Hlasny discloses measuring the signal strength of a received probe response signal to determine transmit time and does not suggest detecting transmit time based on energy level indicated by the Examiner as missing in Adachi.

Summarizing, Adachi and Hlasny, alone or in combination, do not disclose (1) a timing controller transmitting scan messages or using carrier sensing to identify hopping patterns of nearby networks; (2) controlling transmission times of hopping patterns to the nearby networks based on energy level, and (3) a transceiver configured to transmit data hopping patterns at the one or more data transmission times.

Paragraph 2:

1. Claim 25, and include elements as follows:

(a) “generating scan messages inquiring about neighborhood networks and frequency hopping patterns they employ;”

The Examiner contends that Adachi at col. 12, lines 22-63 discloses the subject matter of feature (a). Adachi discloses a search section reads the pattern and time of frequency hopping from a probe response signal to identify hopping patterns in nearby networks. In contrast, Applicants disclose scan messages and carrier sensing of detected energy level to identify hopping patterns of nearby networks, as described in Applicants’ specification at Paragraphs 0079-0083.

Adachi fails to disclose the subject matter of feature (a). Hlasny does not supply the missing feature in Adachi. Hlasny at col. 4, line 62- col. 5, line 1 detects signal strength in a received probe response signal which does not equate to sensing of a carrier sensor energy level.

(b) “monitoring transmissions in one or more frequency bands of a plurality of channels;”

The Examiner contends Adachi at col. 17, lines 35-40 and components 58 and 59 describe the subject matter of feature (b). The cited text discloses a Frequency Hopping (FH) scheme for identifying hopping patterns of networks. Adachi at col. 2, lines 2-12 describes a FH scheme as a frequency band having a predetermined width divided into plurality of channels, and the plurality of channels are switched from one another so as to be sequentially used as a carrier frequency of an ordinary narrow band modulated signal. Adachi monitors channels in a single frequency band.

In contrast, Applicants’ specification at Paragraphs 0079-0083 discloses monitoring transmission in one or more frequency bands, typically three frequency bands to meet the requirement of Multiband OFDM communications described in Paragraphs 0030-0031.

Adachi fails to disclose monitoring one or more channels of communication system

(c) “based on the monitored transmissions, determining a plurality of unique time frequency code (TFC) for each of plurality of networks ~~of at least one remote short range wireless communications network~~;

The Examiner contends col. 17, lines 49-53 discloses detecting a FH pattern and timing of a nearby network. The cited text discloses a search section obtains from the received probe response signal the pattern and time of the frequency hopping pattern of the nearby network.

In contrast, Applicants’ specification at Paragraph 0028-0029 describes a time frequency code as a sequence of symbols transmitted in different frequency band according to a repeated sequence. Applicants can find no disclosure or suggestion in the cited Adachi text related to determining a time frequency code of plural frequency band, as described in Applicants’ specification at Paragraphs 0046-0047. .



(d) “selecting a one of the unique TFC for use in a local short-range wireless communications network based on ~~the~~ a TFC of the at least one neighborhood remote wireless communications network;”

The Examiner contends that Adachi at col. 17, lines 53-56 and Figure 6 disclose the claimed subject matter. The cited text describes a FH section selecting a hopping pattern in a single frequency band. There is no disclosure of a TFC in Adachi, wherein the TFC defines a hopping sequence among frequency bands of different frequencies.

(e) “distributing information regarding the selected TFC to one or more remote devices within the local short-range wireless communications network;”

The Examiner contends Adachi at col. 17, lines 59-60 and col. 17, line 66 - col. 18, line 7 disclose the claimed subject matter. The cited text describes imparting the frequency hopping pattern and timer value in a network functioning in a single frequency band. Applicants can find no disclosure in Adachi of imparting a TFC in a network functioning in one or more, typically 3 frequency bands

(f) “determining whether the wireless communications device needs to transmit data within the local short-range wireless communications network;”

The Examiner contends that Fleek at col. 5, lines 31-33 discloses the claimed subject matter. Fleek describes determining whether a local station needs to transmit data in a single frequency band. Fleek does not describe determining whether a device in a local network of one or more frequency bands needs to transmit data, as described in Applicants’ specification at Paragraph 0053.

(g) “monitoring one or more of the frequency bands to designate transmission timing for the data.”

The Examiner contends that Fleek at col. 5, lines 34-39 and 48-49 discloses the claimed subject matter. Fleek describes monitoring a single frequency band to designate a transmission time. The cited text fails to disclose monitoring one or more frequency bands to designate transmission timings, as described in Applicants’ specification at Paragraph 0053.

Summarizing, for the reasons indicated above in sub-paragraphs (a) - (g), Adachi and Fleek, alone or in combination, fail to disclose or suggest: (1) scan messages and carrier sensing of detected energy level to identify hopping patterns of nearby networks; (2) monitoring transmission in a plurality of frequency range operating in the UWB of 3.1 to 10.6 Ghz frequency band to meet the requirement of Multiband ODFM communications; (3) a time frequency code as a sequence of symbols transmitted in different frequency band according to a repeated sequence; (4) selecting a TFC defining a hopping sequence among frequency bands of different frequencies; (5) imparting a TFC in a network functioning in one or more, frequency bands, and (6) monitoring one or more frequency bands to designate transmission timing.

The rejection of claim 25 under 35 USC 103 (a) based upon Adachi and Fleek, alone or in combination, is without support in the cited art, as discussed above. Withdrawal of the rejection and allowance of claim 25 are requested.

### CONCLUSION

Applicants have distinguished independent claims 1, 11, 20, 23 and 25 from the cited art without the entry of claim amendments or new matter. The prosecution of the claims 2-10, 12-19, 22, 24 remaining in the application is held in abeyance until an Advisory Action is issued by the Examiner. The application is believed in condition for allowance. Entry of the Reconsideration of the Final Rejection; allowance of independent claims 1, 11, 20, 23 and 25 and passage to issue of the application are requested.

### AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4500, Order No. 4967-0012. A DUPLICATE OF THIS SHEET IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4500, Order No. 4967-0012. A DUPLICATE OF THIS SHEET IS ATTACHED.

Respectfully submitted,  
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